USSR

UDC 591.524:597.6/9

SHVARTS, S. S. and ISHCHENKO, V. G.

Puti prisposobleniya nazemnykh pozvonochnykh zhivotnykh k usloviyam sushchestovovaniya v subarktike, tom 3, zemnovodnyye (Methods of Adaptation of Land Vertebrates to Subarctic Conditions, Vol 3, Amphibians), Sverdlovsk, 1971, 60 p

Translation: Annotation: The preceding volumes of this series discussed methods by which mammals and birds adapt to the subarctic region. This volume deals with amphibians.

The data on this group of land vertebrates are still relatively meager, but the available information is not only interesting but potentially useful for analyzing the common patterns of adaptation of animals to conditions in the Far North. In many cases these patterns are manifested even more clearly in amphibians than in mammals or birds.

The authors hope that the synthesis of data on the ecology of subarctic amphibians will stimulate further research on this interesting group of animals.

This work should be regarded as a continuation of the early volumes. Hence the authors dispense with a special description of the natural conditions

USSR

SHVARTS, S. S. and ISHCHENKO, V. G., Puti prisposobleniya nazemnykh pozvonochnykh zhivotnykh k usloviyam sushchestvovaniya v subartike, tom 3, zemnovodnyye, Sverdlovsk, 1971, 60 pp

in the subarctic region, for it was given in the first volume of the series (Shvarts, 1963).

CONTENTS

2/2

Ecology

UDC 581.5

USSR

SHVARTS, S. S., Institute of Plant and Animal Ecology, Academy of Sciences, USSR, Sverdlovsk

"Population Structure of a Biogeocenosis"

Moscow, Izvestiya Akademii Nauk SSSR, No 4, 1971, pp 485-493

Abstract: There are two approaches to the study of a biogeocenosis: the study of some specific cenosis in all facets of its internal dynamic organization and external relationships, or investigation of the most important biogeocenotic processes and the phenomena which determine the laws of life in biosphere. The study of these mechanisms forms the basis of the theory of biogeocenotic function. Its premises are: species populations form the elementary units of biogeocenosis; biological specifics of biogeocenosis are determined by the functional unity among a small number of species, and satellite species do not change the status of a biogeocenosis within the biosphere, but to a great extent determine the effectiveness of biogeochemical action which in turn is determined by the peculiarities of the biogeocenotic nucleus; the productivity of a biogeocenosis is determined by the biological peculiarity of the dominant species, and its stability -- by the general structure; population and biogeocenotic mechanisms of the numerical regulation of individual species protect

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USSR

SHVARTS, S. S., Izvestiya Akademii Nauk SSSR, No 4, 1971, pp 485-493

the biogeocenosis against catastrophic disturbances of its structure; the integrity of a biogeocenosis is manifested by the fact that a change in one component within the system alters the behavior of the systen as a whole; not only between separate species, but also between the larger units of the cenotic network there exists a system of correlative connections which protect the biogeocenosis from discoordination of its functions and those of its basic components. Development of the foregoing premises confirms the synevolution of the species forming the biogeocenosis and makes it possible to evaluate thesstatus of the biogeocenosis on the basis of a study of the dynamics of the dominant species populations. The theory of control of biogeocenotic processes is based on the premise that a biocenosis constitutes the active origin of the living and inert components of a biogeocenosis.

2/2

Ecology

USSR

UDC 59:100.41:576.75+591.526

SHVARTS, S. S., Institute of Plant and Animal Ecology, Ural Branch of the Academy of Sciences USSR, Sverdlovsk

"Dialectics of Development at the Organism and Population Levels"

Moscow, Zoologicheskiy Zhurnal, No 4, 1970, pp 496-504

Abstract: Lenin's ideas on the relationship between phenomenon and law, essential and nonessential, necessity and chance throw light on the causes and mechanisms of the "spontaneous movement" of living matter, which is based on the internal contradictions between the adaptations and evolutionary transformations of animals. The following concepts and phenomena are analyzed from this standpoint: specialization and universalization, genotype and environment, genotype and phenotype, individual and population, and population and biogeocenosis. The most important contradictions that arise at the organism level of integration are resolved at the population level. Events that are random at the cellular or organism level result in nonrandom consequences at the population level. Evolution is a strictly determined process involving the transformation and integration of random events. Elevation of the level of organization and perfection of homeostasis result in continuous enrichment of the biosphere but at the cost of decreased efficiency in the use of energy by the individual systems and systems as a

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USSR

SHVARTS, S. S., Zoologicheskiy Zhurnal, No 4, 1970, pp 496-504

whole. A knowledge of the dialectics of these phenomena and processes can lead to their control on the scale of biogeocenoses or even entire physical-geographic regions.

SHVARTS, S. S.

GENETIC AND ECOLOGICAL INVESTIGATIONS AND THE THEORY OF [illegible]

[Article by Academician S. S. Shvarts; Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 42, No 8, [illegible], pp 41-46]

Contemporary evolutionary theory, based on a synthesis of [illegible] Darwinism and genetics, has developed to a considerable degree the [illegible] generalization of the experience of agricultural practice. [illegible] work still makes inadequate use of the achievements of evolut[illegible]. In addition, there exists an opinion, supported by certain [illegible] ticians (B. Klatt, A. Remane, W. Herre, and others), that evolution and domestication are processes different in principle. Such an opinion [illegible] neous: the driving force of the evolution of wild and domestic animals [illegible] to the same category of biological phenomena -- their concrete [illegible] is different. This was established long ago by Darwin and has been [illegible] firmed by many investigators. It is sufficient in this connection [illegible] tion the classical monograph of Ye. A. Bogdanov (1913) and the [illegible] generalizing works of S. N. Bogolyubskiy (1936, 1939 and 1959).

Analysis of the general and the specific in the evolution of wild and domesticated forms is of great general biological importance [illegible] prove to be useful in the elaboration of the theoretical principles of breeding and breed formation. That analysis must be based on a [illegible] of evolutionary theory, the theory of morphological regularities of [illegible] tication and and ecological genetics as a section of population genetics, which investigates the dependence of the genetic uniqueness of populations on the concrete conditions of their existence and the interrelation[illegible] tween the ecological structure of a population and its genetic [illegible].

The tasks of ecological genetics include explanation of the [illegible] cal mechanisms of the maintenance of genetic heterogeneity of [illegible] and of the transformation of the genetic composition both of p[illegible] as a whole and of intrapopulation groups of animals; establish[illegible] dependence of the dynamics of the numbers of natural and experi[illegible] lations on their genetic composition; finally, explanation of [illegible] tions between the sizes of a population, the dynamics of its [illegible] tic drift and the effectiveness of selection.

JPRS 57307
20 Oct 72

Environmental & Ecological Problems

USSR

SHVARTS, S. S. and GORCHAKOVSKIY, P. L.

"Ecology in the USSR: Status, Main Trends, and Outlook"

Moscow, Ekologiya, No 6, 1972, pp 5-12

Abstract: Russian ecology reached a fairly high level of achievement even before the revolution. It had collected many facts, formulated some important theoretical ideas, and made tentative efforts to apply them to practical problems. With the advent of the Soviet regime, floristic and faunistic studies of considerable ecological significance were intensified. Expeditions were gradually replaced by a network of permanent field stations in all parts of the country as the collectors of data and numerous preserves, sanctuaries, and national forests came into being. Two fields of research are now predominant. One is concerned with the ways in which plants and animals use their territory. The other focuses on intrapopulation variability as a major adaptive mechanism of a species. Variational statistics, mathematical modeling, radioisotopes, and other modern techniques are extensively employed. Much of the research now under way is influenced both by potential practical applications and by environmental considerations.

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USSR UDC 621.372.853.092.22

SHCHELKOTUNOV, V. A., SHVARTS, V. D.

"Coefficient Method of Calculating the Temperature Field of a Wave Guide Section"

Elektron. tekhnika. Nauchno-tekhn. sb. ferrit. tekhn. (Electronic Engineering. Scientific and Technical Collection. Ferrite Engineering), No 3 (25), 1970, pp 73-78 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B126)

Translation: The thermal conditions of a wave guide section with two methods of arranging the ferrite plate are investigated.

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UDC 669.24 669.018.2

USSR

KOTOV, V. F., KURILO, YU. P., SOMOV, A. I., and SHVARTS, V. I., Physico-technical Institute, Academy of Sciences Ukrainian SSR

"Microstructure and Mechanical Properties of an Eutectic Composition Ni_3Al - Ni_3Nb"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 669-672

Abstract: The aim of this work was to study the effect of controlled crystallization of Ni_3Al - Ni_3Nb alloy on its mechanical properties. Controlled crystallization was applied during drawing of an ingot from a melt in vacuum ($1 - 5 \cdot 10^{-6}$ mm Hg), using a pure crystalline Ni as seed charge. The crystallization rate varied from 21 to 98 mm/hour, with the temperature gradient in the melt from 80 to 150°C/cm. The tensile strength of samples prepared by this method was 140-180 kg/mm^2 at room temperature. Changes in tensile properties were due to variations in the alloy crystal structure, namely, to disorientation of Ni_3Al and Ni_3Nb lamellas. When this disorientation was extensive, the tensile properties decreased to 100 kg/mm^2. Appearance of primary crystals of either Ni_3Al or Ni_3Nb phases decreased the tensile properties to 50-100 kg/mm^2. Tensile properties of samples tested under vacuum conditions were somewhat higher compared with those at room temperature. When the testing temperature was high, this difference amounted to 14 kg/mm^2 at 1100°C. This is attributed

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USSR

KOTOV, V. F., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 669-672

to oxidation of the alloy in atmospheric oxygen. The stress-rupture strength of samples tested in argon at 1100°C for 100 hours was ~16.5 kg/mm^2, and it was ~ 15 kg/mm^2 and ~24 kg/mm^2 when tested in atmosphere at 1100 and 1000°C, respectively. Mechanical properties of Ni_3Al - Ni_3Nb alloy produced by the controlled crystallization exceeded those of ordinary nickel alloys in many respects.

2/2

UDC 669-419.4

USSR

KOTOV, V. F., FONSHTEYN, N. M., and SHVARTS, V. I.

"A Heat-Resisting Composite: Nichrome-Tungsten Fiber"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, PP 20-22

Abstract: The article describes a nichrome-base composite reinforced with tungsten fiber. Minimum contact between the tungsten fibers and liquid nichrome is assured by vacuum impregnation of the set of fibers with the molten metal of the matrix. The vacuum suction setup consists of a vacuum system, an induction melting furnace, and tube furnace for preheating the ring filled with the tungsten wire. The ring is a tube made of 1Kh18N10T steel. The strengthener is wire made of VA tungsten or the alloys VAM-5 and VAR-5, containing 5 percent Mo or rhenium, respectively. Fused ultrapure aluminum oxide (alundum) is suggested as a coating to protect the tungsten wire from dissolution

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USSR

KOTOV, V. F., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, pp 20-22

in the matrix. Short-time tensile tests at 1100° C of nichrome reinforced with 450-micron-diameter VA tungsten wire showed that 40 vol. percent of the strengthening fiber provides over an 8-fold increase in the ultimate strength of the matrix and over a 15-fold increase in yield strength. The long-time strength of the resultant composite is 40-50 percent higher than for the best heat-resisting nickel alloys.

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USSR UDC 669.71'782'3

FONSHTEYN, N. M., TIKHOMIROVA, G. N., KOTOV, V. F., and SHVARTS, V. I.

"Tungsten Fibers As a Strengthener for A Heat-Resisting Composite"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, pp 11-14

Abstract: The authors studied characteristics of tungsten fibers which determine the possibility of their use as reinforcement in a heat-resisting nichrome-base composite. Wire specimens of so-called "non-sag" VA tungsten, 25-500 mm in diameter, were used for the study, as well as the tungsten alloys VAR-5 and VAM-5. To estimate the strengthening effect of the reinforcing fibers on the heat resistance of the composite, a determination was made of wire strength after the technological operations of the composite fabrication cycle. It was found that the short-time strength at 1100° C of "raw" and annealed 0.15-mm-diameter speci-

USSR

FONSHTEYN, N. M., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, pp 11-14

mens of VA wire is 92 and 84 kg/mm^2, respectively. Prolonged exposure to elevated temperatures (800-1200° C) causes almost no change in the structure and mechanical properties of the investigated tungsten alloys. However, surface contact between tungsten and its alloys and nickel even at 800° C causes considerable loss of wire ductility and microhardness, and at 1200° C results in appreciable grain growth on the wire surface. High long-time heat resistance can be provided for a nichrome-base composite with tungsten strengthener by using special protective coatings to protect the reinforcement against the action of the matrix, as well as by changing the composition of the matrix and alloying the reinforcing material.

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UDC 77

USSR

SHVARTS, V. M.

"A Mechanism for Deviations From the Reciprocity Law in Extended Aging"

V sb. Mezhdunar. kongress po fotogr. nauke, Moskva, 1970, Priroda fotogr. chuvstvitel'nosti (International Congress on Photographic Science, Moscow, 1970, Nature of Photographic Sensitivity -- Collection of Works), no place of publication given, Vneshtorgizdat, no year given, pp 151-154 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1360)

Translation: The effect on nonreciprocity at low illumination by chemical agents and by the introduction of optical sensitizers or desensitizers into emulsion is investigated. Analysis of the data shows the essential part of "secondary" electrons thermally freed from unstable centers in subsequent processes of formation and growth of a latent image. This situation is not considered by any of the earlier proposed theories of nonreciprocity at low illumination. A sys-

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USSR

SHVARTS, V.M., Mezhdunar. kongress po fotogr. nauke, Moskva, 1970, Priroda fotogr. chuvstvitel'nosti, no place of publication given, Vneshtorgizdat, no year given, pp 151-154

tem of kinetic equations describing the growth (including that due to "secondary" electrons) and thermal decay of centers of different dimensions is considered, and on this basis an equation for the nonreciprocity at low illumination is obtained which gives better agreement with experimental isopacities close to the optimum than previously proposed equations.
A.L. Kartuzhanskiy.

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1/2 005 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--FIRST INDUSTRIAL TEST OF THE CEMENTING OF A WELL BY ADDING PETROLEUM TO THE CEMENT SLURRY -U-

AUTHOR-(05)-MAKHMUDOV, M.N., ZHURAVLEV, G.I., SHVARTS, YA.A., SIMONENKOV, I.D., TAVANETS, A.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., NEFT GAZ 1970, 13(3), 19-24

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CEMENT, PETROLEUM EXTRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1212 STEP NO--UR/0152/70/013/003/0019/0024

CIRC ACCESSION NO--AT0133209

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 005

CIRC ACCESSION NO--AT0133209

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CEMENT SLURRY MIXED WITH 1.5PERCENT PETROLEUM AND 0.35PERCENT TARTARIC ACID BASED ON DRY CEMENT GAVE SUFFICIENTLY STRONG STONE. THE PUMPABILITY OF THE CEMENT SLURRY WAS THUS IMPROVED AND GREATER SPEED OF ITS ASCENDING FLOW PROVIDED.

FACILITY: AZERB. INST. NEFTI KHIM. IM. AZIZBEKOVA, BAKU, USSR.

UNCLASSIFIED

SHVARTS, Ya. M.

ELECTRICITY OF CLOUDS

By I. M. Imyanitov, Ye. V. Chubarina,
and Ya. M. Shvarts

Translation of: "Elektrichestvo oblakov,"
Hydrometeorological Press,
Leningrad, 1971

NASA TT F-718
June 72

ANNOTATION

The electricity of the clouds substantially affects their evolution, particularly the development of thunderstorms and the formation of precipitation. The probability of lightning hitting aircraft and the reliability of the aircraft's radio communication and navigation devices are closely connected with the electricity of the clouds. In the Brobdingnagian scale of the atmosphere, as compared with the Lilliputian scale of the laboratories, our ideas developed indoors of what is possible and what isn't begin to lose sense. The case of ball lightning can be cited as an example.

At the same time, meteorologists know very little about the electrical properties of the clouds, their "electrical nature," especially modern ideas and data that are not yet published in the widely spread literature.

The booklet "Electricity of the Clouds" is an attempt to compile complete data on clouds electrical characteristics and to outline modern knowledge on their electrical properties of clouds, to describe the processes which lead to electrification, methods devised by man to change the clouds electrical properties and to evaluate the influence of cloud electrical properties on their development

The book is designed for meteorologists and other specialists who are interested in atmospheric electricity.

SHVARTS, Yu. M.

JPRS 59208
6-73

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XIV-8. STUDY OF THE MORPHOLOGY OF THE GROWTH OF EPITAXIAL FILMS BY THE ELECTRON DIFFRACTION METHOD

[Article by V. I. Poludin, S. V. Svechnikov, S. M. Iorchun, Yu. A. Tkhorik, Yu. M. Shvarts, Kiev; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 205]

In this paper it was demonstrated that the electron-microscope study of the film surface by the replica method can turn out to be inadequate to obtain unique conclusions regarding the morphology and mechanical growth of a film. The most complete information about the growth process is given by the complex use of electron diffraction and electron microscopy in different stages of growth beginning with thicknesses of several tens of atomic layers. The application of the indicated methods to the study of epitaxial films of germanium on substrates of silicon and gallium arsenide permitted detection of the morphological peculiarities of the film growth.

USSR UDC: 539.4.015/019

SHVARTSBART, YA. S., Electrostal' Plant

"High-Temperature Strain Hardening of Metals and Alloys"

Moscow, Izvestiya Akademii nauk SSSR, Metally, No 1, Jan-Feb 72, pp 153-158

Abstract: The exact definition of forces and work of high-temperature plastic deformation of metals and alloys as well as the calculation of stresses occurring in metals and alloys undergoing high-temperature machining requires the knowledge of principles governing the process of high-temperature strain hardening. Analysis of the experimental high-temperature strain hardening curves of metals and alloys in terms of the phenomenological theory of both hardening and softening indicates that the total hardening of the material results from the summation of elementary increments of intrinsic hardening and softening determined quantitatively in accordance with derived relationships. The softening rate during deformation is a function of deformation rate and increases with it. At a certain constant degree of deformation governed by the temperature, rate, and nature of the material under study and equal to a certain deformation-

USSR
SHVARTSBART, YA. S., Izvestiya Akademii nauk SSSR, Metally, No 1, Jan-Feb 72, pp 153-158

softening ratio, hardening reaches its limit value. The shape of the high-temperature strain hardening curve is well determined by three values of flow stress and three degrees of deformation linked by a simple relation. (1 illustration, 3 tables, 6 bibliographic references).

2/2

Nickel

USSR UDC 621.771.02

SHVARTSBART, YA. S., Candidate of Technical Sciences, "Electrostal" Plant

"Effect of the Deformation Rate on the Resistance to Hot Plastic Deformation of Some Nickel-Base Alloys"

Moscow, Stal', No 1, Jan 71, pp 47-48

Abstract: The effect of the deformation rate on the yield point of five nickel-base alloys was studied by comparing the values of the yield point in the stretching of standard specimens 5 mm in diameter and 25 mm in length on an IM12A machine. Extrapolated yield point values were obtained by the differentiation of specific deformation work curves during rolling at a deformation rate of 6 sec^{-1} at temperatures of 1000 and 1150°C. The rates at which the specimens were stretched on the machine were $1.33 \cdot 10^{-3}$ sec^{-1}, with an absolute stretching rate of 2 mm/min, and $1.06 \cdot 10^{-2}$, with an absolute stretching rate of 16 mm/min. Tables giving the chemical composition of the five alloys and the results of the tests are presented. It was found that the rate factor n_v varies markedly, depending on the chemical composition of the alloy, the temperature, and the rate of "static" testing. The formulas obtained can be used for practical work.

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1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SPECTRUM OF CONVECTIVE INSTABILITY IN A VERTICAL CHANNEL WITH POROUS BOUNDARIES -U-
AUTHOR-(03)-GERSHUNI, G.Z., ZHUKHOVITSKIY, YE.M., SHVARTSBLAT, D.L.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MATEMATIKA I MEKHANIKA, VOL. 34, JAN.-FEB. 1970, P. 150-152
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLOW STABILITY, THERMAL CONVECTION, POROSITY, FLUID FLOW, NUMERIC SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1446 STEP NO--UR/0040/70/034/000/0150/0152

CIRC ACCESSION NO--AP0106202
UNCLASSIFIED

2/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0106202

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF A NUMERICAL STUDY OF THE SPECTRA OF NONSTATIONARY CONVECTIVE DISTURBANCES IN A FLUID WHICH IS HEATED FROM BELOW AND CONTAINED IN A PLANE VERTICAL CHANNEL WITH POROUS WALLS. PREVIOUS STUDIES SHOWED THAT THE CHARACTERISTIC RAYLEIGH NUMBERS GOVERNING THE LIMITS OF STABILITY WITH RESPECT TO STATIONARY DISTRUBANCES DEPEND ON THE VELOCITY OF TRANSVERSE FLUID MOTION; INCREASED PECLET NUMBERS ARE ACCOMPANIED BY A LOCKING OF NEIGHBORING LEVELS OF THE INSTABILITY SPECTRUM. IT WAS HYPOTHESIZED THAT THIS BLENDING OF THE LEVELS OF STATIONARY MOTIONS IS ACCOMPANIED BY THE ONSET OF OSCILLATORY CONVECTIVE MOTIONS. THE PRESENT RESULTS CONFIRM THAT HIGHER PECLET NUMBERS RESULT IN A CONVECTIVE MOTION OF THE STATIONARY OSCILLATION TYPE. DEPENDING ON THE PECLET NUMBER, THE FUNDAMENTAL STATE (TRANSVERSE FLUID MOTION) IS UNSTABLE WITH RESPECT TO EITHER MONOTONIC OR OSCILLATING DISTURBANCES. ANALYSIS OF THE SPECTRA DEFINES THE BOUNDARIES OF BOTH TYPES OF INSTABILITIES.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

1/2 021

TITLE--EXACT SOLUTIONS OF NONLINEAR GEOMETRICAL OPTICS EQUATIONS -U-

AUTHOR-(02)-GUREVICH, A.V., SHVARTSBURG, A.B.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 6, PP 2012-2022

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROMAGNETIC WAVE, OPTIC PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2228 STEP NO--UR/0056/70/058/006/2012/2022

CIRC ACCESSION NO--AP0125806

UNCLASSIFIED

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0125806 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NONLINEAR DYNAMICS IN A MEDIUM OF INTENSE PLANE BEAMS OF ELECTROMAGNETIC WAVES IS INVESTIGATED WITHIN THE FRAMEWORK OF GEOMETRICAL OPTICS. A BROAD CLASS OF EXACT ANALYTIC SOLUTIONS OF NONLINEAR GEOMETRICAL OPTICS EQUATIONS IS INDICATED. IT IS SHOWN THAT WITH DEVELOPMENT OF THE SOLUTION SINGULARITIES ARISE IN THE DISTRIBUTION OF INTENSITY AND DIRECTION OF THE RAYS IN THE BEAM, JUST AS OURING DEVELOPMENT OF A SIMPLE WAVE IN THE HYDRODYNAMICS OF AN IDEAL COMPRESSIBLE LIQUID. THE SINGULARITIES ARE CLASSIFIED AND THE THREE MAIN TYPES ARE MENTIONED. FACILITY: FIZICHESKIY INSTITUT IM. P. N. LEBEDEVA AN SSSR.

UNCLASSIFIED

USSR

UDC: 621.315.4

SHVARTSBURD, Ye. Ya., TROFILEYEVA, G. K., POPENENKOV, V. A., PISAREV, A. V.

"Enameled Aluminum Wires With Polyimide Insulation"

Kabel'n. tekhnika. Nauchno-tekhn. sb. (Cable Technology. Scientific and Technical Collection), 1970, vyp. 61, pp 8-9 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6V320)

Translation: Polyimide insulation is of interest because of its high resistance to heat. The authors point out the technological difficulties which had to be encountered in developing eluminum wires with polyimide insulation (chiefly the poor adhesion between a polyimide film and aluminum). The characteristics of wires developed with a double layer of polyesterimidopolyimide insulation are given. Two tables. N. S.

1/1

USSR

UDC: 531.787.7

PODGOYETSKIY, M. L., SHVARTSER, V. I., SHEYNKERMAN, E. Z., MOSKVINA, M. A., MAR'YANOVSKIY, Ya. M., LIVSHITS, A. M., PROZOROV, M. A., "Tsvetmetavtomatika" Special Design Office

"A Pneumatic Compensation Differential Manometer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 36, Dec 71, Author's Certificate No 322676, Division G, filed 24 Nov 69, published 30 Nov 71, p 138

Translation: This Author's Certificate introduces a pneumatic compensation differential manometer which contains a diaphragm measurement unit consisting of a support cushion, diaphragms, a diaphragm connector and a needle gate valve. The manometer also contains a converter which changes force to a pneumatic signal. As a distinguishing feature of the patent, The accuracy and reliability of the device are improved by making the diaphragm connector in the form of a hollow stepped cylinder with flanges for fastening the diaphragms. The needle gate valve is located in the inner cavity of the cylinder, which is equipped with a frame with contact support element.

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USSR

UDC: 519.281

SHVARTSER, V. Ya.

"Determination of Stationary Regions of Change in the Functions of Random Arguments"

Sb. nauch. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met., 1971, vyp. 12, pp 58-64 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V311)

Translation: The author considers the problem of finding the extremum of the unknown nonrandom function Y of the random argument X with respect to a given sample $((y_i, x_i))_{i=1}^{n}$. A simple method is described which consists in breaking up the possible range of values of X into intervals, for each of which the ratio $\frac{\sigma_Y}{\sigma_X}$ is calculated from the x_i falling into these intervals, where σ is standard deviation. It is proposed that the interval in which $\frac{\sigma_Y}{\sigma_X}$ is a minimum be considered a region of small change in Y,

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SHVARTSER, V. Ya., Sb. nauch. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met., 1971, vyp. 12, pp 58-64

while the average value of x in the interval is considered the extremum.

Abstractor's note: The problem is not rigorously formulated, so that it is not possible to evaluate the quality of the method. Under these conditions, a number of analogous methods could be pointed out which are just as simple. The paper contains a great number of inaccuracies and misprints. Yu. Petrov.

USSR UDC: 519.281

SHVARTSER, V. Ya.

"Determination of Stationary Regions of Change in the Functions of Random Arguments"

Sb. nauch. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met., 1971, vyp. 12, pp 58-64 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V311)

Translation: The author considers the problem of finding the extremum of the unknown nonrandom function Y of the random argument X with respect to a given sample $\{(y_i, x_i)\}_{i=1}^{n}$. A simple method is described which consists in breaking up the possible range of values of X into intervals, for each of which the ratio $\frac{\sigma_Y}{\sigma_X}$ is calculated from the x_i falling into these intervals, where σ is standard deviation. It is proposed that the interval in which $\frac{\sigma_Y}{\sigma_X}$ is a minimum be considered a region of small change in Y,

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SHVARTSER, V. Ya., Sb. nauch. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met., 1971, vyp. 12, pp 58-64

while the average value of x in the interval is considered the extremum.

Abstractor's note: The problem is not rigorously formulated, so that it is not possible to evaluate the quality of the method. Under these conditions, a number of analogous methods could be pointed out which are just as simple. The paper contains a great number of inaccuracies and misprints. Yu. Petrov.

USSR UDC: 519.281

TEREKHOV, L. V., SHVARTSER, V. Ya.

"Determining the Variance of an Entire Aggregate From the Variance of Group Averages"

Sb. nauchn. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met. (Collected Scientific Works of the Scientific Research and Design Institute on Enrichment and Agglomeration of Ferrous Metal Ores), 1970, vyp. 12, pp 231-233 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V219)

Translation: An approximate formula is proposed for determining the variance of a general aggregate from the variance of group averages in samples of identical volume. Conditions of applicability of this formula are indicated. Ya. Shor.

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UDC 519.21

USSR

SHUPOV, L. P., and SHVARTSER, V. YA.

"Predicting Steady Random Processes"

Sb. nauch. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met. (Collection of Scientific Works of the Scientific Research and Design Institute for the Concentration and Agglomeration of Ores in Ferrous Metallurgy), No 12, 1971, pp 64-80 (from Referativnyy Zhurnal - Matematika, No 8, Aug 71, Abstract No 8V145 by V. Makovskiy)

Translation: Two groups of prediction methods as applied to small computers are considered: extrapolational (the Braun method, the method of a sliding mean feedback, and method of statistical prediction) and methods employing Markov chains. A comparison is made between the effectiveness of predicting with extrapolational methods, considered one with the other, and with a method based on Markov chains. The comparison was made on two problems that are typical for the ore-mining industry.

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USSR

UDC 621.791.756:621.879.4

~~SEVARTSEV, A. YA~~, STOYKO, V. P., and SAMOYLENKO, L. V., Donets Polytechnical Institute

"Electric Slag Welding and Casting with a Constant Slag Bath"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 70, pp 60-63

Abstract: The rapid and widespread development of electric slag welding and casting has been hindered by certain defects in the present techniques, particularly the need for bringing in the slag bath. This has made the process wasteful, especially when it is used to cast small objects in mass production. These defects have been avoided in a process developed by the Donets Polytechnical Institute, which does not require that the bath be repeatedly brought in after a casting has been made. The process can therefore be termed casting with a constant slag bath. The chemical composition of this bath varies since there is a metallurgical reaction among the metal, the slag, and the gases inside the bath as well as on the free surface of the slag. Also fresh flux must be introduced into the slag bath in the mass production of the objects, and this too changes the chemical composition. Despite this disadvantage, the constant slag bath process deserves attention.

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USSR

UDC 632.96

TIMOFEYEVA, O. A., SHVARTSMAN, G. A., and DEMCHENKO, YE. P.

"Gas Chromatographic Determination of γ-hexachlorocyclohexane and p,p'-DDT in Grapes, Wine, Water and Juice"

V sb. Novyye metody tekhnol. i kontrolya konservn. i vinodel'ch. proiz-va (New Methods of Technology and Inspection in the Canning and Distillery Industry -- collection of works), Kishinev, "Shtintsa", 1972, pp 120-124 (from RZh-Khimiya, No 22, Nov 72, Abstract No 22N415)

Translation: A chromatograph with tritium detector is used for determining re idual quantities of γ-hexachlorocyclohexane and p,p'-DDT in grapes and products processed from grapes. The column is charged with 10% SE-30 on chromosorb W. The temperature of column, vaporizer and detector 230, 260, 160°C. Rate of argon flow 65 ml/min. The authors investigate the conditions of isolation of the given insecticides from the specimens to be analyzed, methods of purifying the resultant extracts, and the basic parameters of gas chromatographic analysis. For liquid products, the best results are given by predistilling the hexachlorocyclohexane and DDT with steam, followed by extraction with n-hexane. For grapes, direct extraction is used followed by purifying the extract with concentrated sulfuric acid. Extraction of insecticides

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USSR

TIMOFEYEVA, O. A., et al., V sb. Novyye metody tekhnol. i kontrolya konservn. i vinodel'ch. proiz-va, Kishinev, "Shtintsa", 1972, pp 120-124

from specimen comes to 85-95%. The method can be used to determine 0.2 μg of hexachlorocyclohexane and 1 μg of DDT in 1 liter (kg) of a specimen when 100 ml (g) is subjected to analysis. The time of analysis of liquid products is 1.5 hours, and the time for grapes is 2-2.5 hours. T. A. Belyayeva.

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USSR

UDC 621.318.13:621.372.85

BEZMATERNYKH, L. N., SHVARTSMAN, G. I., MASHCHENKO, V. G., AFANAS'YEV, A. P., BOKOV, L. A., PROKHOPOV, A. R., ZAYTSEV, V. A., KUZHELEV, S. M.

"Controllable Delay Lines Based on Yttrium-Garnet Ferrite Rods"

V sb. Tonkiye magnitn. plenki, vychisl. tekhn. i radiotekhn. T. 2 (Thin Magnetic Films, Computer Technology and Radio Engineering--collection of works. Vol 2), Krasnoyarsk, 1971, pp 142-146 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11B190)

Translation: The paper presents the results of an experimental study on excitation and propagation of magnetoelastic and magnetostatic waves in yttrium-garnet ferrite rods as applied to their use in controllable delay lines. An analysis is made of relationships for delay time as a function of the external magnetic field when frequency is held constant, delay time as a function of frequency when the magnetic field is held constant, and total insertion losses as a function of delay time. The measurements were made in the frequency range of 560-3800 MHz. Two illustrations, bibliography of eight titles. A. K.

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USSR

UDC 577.1:615.7/9

PUZYREV, A. A., SHVARTSMAN, I. YE., and SHYLYAKHETSKIY, N. S.

"Morphological Changes and Synthesis of DNA in the Cells of the Pancreas of White Rats Acutely Intoxicated with Perfluortriethylamine"

Tr. Leningr. san.-gigiyen. med. in-ta (Transactions of the Leningrad Medical Sanitation and Hygiene Institute), No 100, 1972, pp 100-103 (from RZh-Biologicheskaya khimiya, No 12, Jun 73, Abstract No 12 F 2049)

Translation: Rats weighing 140-150 grams were subjected to inhalatory poisoning with perfluortriethylamine (I) in a maximally tolerable concentration (850 mg/l) and 1-10 days later a historadioautographic study was made of the synthesis of DNA in the pancreas. A day after the action of I an increase in the labeling index (inclusion of H^3-thymidin) in the epithelium of ducts while in the epithelium of terminal sections and the islets of Langerhands suppression of DNA synthesis and mitotic activity is observed. On the third day after poisoning, these changes are practically preserved while by the tenth day the suppressed proliferative activity of the epithelium of the pancreas is replaced by a sharp increase in the number of DNA-synthesizing cells in the terminal sections and islets of Langerhans; in the epithelium of ducts the DNA synthesis occurs with an intensiveness equal to the control figures.

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Corrosion

USSR

UDC 620.193.55

ALEKSEYEV, V. I., ARCHAKOV, YU. I., BOGOLYUBSKIY, S. D., and SHVARTSMAN, L. A.

"Incubation Period of Hydrogen Corrosion of Carbon Steel"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 735-737

Abstract: This article contains the results of a study of the incubation period of hydrogen corrosion of carbon steel. From the data on the variation of the density of steel 45 as a function of the time under the effect of hydrogen and also the distribution of the relative carbon content in U10A steel after holding in hydrogen for 6, 10, and 14 hours it is concluded that the time before the beginning of hydrogen corrosion is 14-21 hours, which agrees satisfactorily with the results calculated by the earlier derived empirical equation. The mechanism of the extremal nature of the change in density $\Delta\rho$ as a function of the holding time in hydrogen is discussed. During a 14-hour period the processes of shrinkage and swelling of the steel develop predominately in the thin surface layer. However, when holding for 21 hours the swelling not only greatly exceeds the contraction but it also extends to a significant depth.

It is concluded that the incubation period of hydrogen corrosion can be subdivided into two steps. In the first step there is surface decarburization

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USSR

ALEKSEYEV, V. I., et al., Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 735-737

and accumulation of methane in the micropores of the steel to pressures leading to small, probably elastic deformation of the matrix. The plastic properties of the steel practically do not change. On reaching the critical pressure, intense growth of the pores begins, controlled, probably, by the laws of elasticity and plasticity and also by the rate of methane accumulation in the micropores. The plastic properties of the steel become worse, and this is considered the second step of the incubation period. As a result of growth and merging of the micropores, microcracks are formed, increasing the hydrogen penetrability of the steel and its contact surface with the hydrogen atmosphere, leading to sharply intensified decarburization. Thus, the swelling of steel 45 after holding in hydrogen at 500° and 100 technical atmospheres up to 14 hours is small, but holding it for 21 hours leads to a significant decrease in density and plasticity. This can be related to reaching the critical methane pressure in the pores during this time, leading to accelerated crack development and decarburization.

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Steels

UDC 669.15-194.2:669.046.542

USSR

ALEKSEYEV, V. I., BOGOLYUBSKIY, S. D., USHAKOV, I. S., and SHVARTSMAN, L. A., Moscow

"Activity of Carbon in Low-Alloy Steels and Their Tendency to Hydrogen Corrosion"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 134-141

Abstract: A circulation method is used to study the equilibrium of H_2-CH_4 mixtures with the carbon in steels. Steels studied included carbon steel, types 15KhM, 30KhMA, and 40Kh, in the 550-900°C temperature interval. The temperature dependence of thermodynamic activity of carbon was determined. In low-alloy steels types 15KhM, 30KhMA, and 40Kh (0.38 wt. %C) at temperatures below the eutectoid, the activity of carbon is significantly less than in Fe-C alloys in the two-phase α + graphite area. Therefore, graphitization of these steels at these temperatures is impossible. The presence of a correlation between the

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USSR

ALEKSEYEV, V. I., et al., Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 134-141

activity of carbon and the tendency of steels to hydrogen corrosion is demonstrated.

2/2

USSR

UDC: 620.193.55

ALEKSEYEV, V. I., BOGOLYUBSKIY, S. D., USHAKOV, I. S., and SHVARTSMAN, L. A.
Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Thermodynamic Evaluation of the Tendency of Steels to Hydrogen Corrosion"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 397-403

Abstract: Forms of hydrogen corrosion, such as cracking along grain boundaries and dehydrogenization, are caused primarily by the interaction of hydrogen with the carbon of the steel to form methane, which produces high pressures in the steel's micropores. Use was made of thermodynamic activities of carbon measured by the circulation method of gas equilibria to calculate equilibrium pressures of methane in the micropores of austenitic chromium-nickel steels Kh25N20S2, 4Kh25N20S2, Kh25N25G6V5MBAR, and Kh18N10T within 700--1000°C. By comparing the strength characteristics of the steels with the methane pressure in the micropores, it is possible to evaluate their tendency to failure. A correlation is noted between hydrogen resistance (found by testing steel in hydrogen) and the carbon activity, making it possible to determine the tendency of steels to hydrogen corrosion without having to resort to protracted and relatively inefficient laboratory tests in hydrogen.

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1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--KINETICS OF THE DECARBURIZATION OF TRANSFORMER STEEL IN MOISTENED NITROGEN HYDROGEN MIXTURES -U-

AUTHOR-(04)-TOMILIN, I.A., BORISENKO, V.G., PETRENKO, A.G., SHVARTSMAN, L.A.

COUNTRY OF INFO--USSR

SOURCE--ZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 329-32

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TRANSFORMER STEEL, NITROGEN, HYDROGEN, COLD ROLLING, SILICON STEEL, METAL DECARBURIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0178 STEP NO--UR/0048/70/034/002/0329/0332

CIRC ACCESSION NO--AP0115882

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115882

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TESTS WERE MADE ON THE CHANGE OF C CONCN. AFTER TEMPERING THE SAMPLES OF COLD ROLLED STEEL DEPENDING ON THE TIME AND CHEM. COMPN. OF THE GAS. THE INITIAL C CONTENT IN STEEL WAS 0.045PERCENT. THE GAS STREAM FLOW RATE WAS SIMILAR TO 4 M PER MIN. THE C CONCN. WAS DETD. BY CHEM. METHODS. DURING EXPTS. A CONST. CONCN. OF H SUB2 (15PERCENT) WAS MAINTAINED, CHANGING, HOWEVER, THE RATIO RHO SUBH2-RHO SUBH2O FROM 10 TO 1.5. THE RATE OF DECARBURIZATION INCREASED WITH INCREASE OF MOISTURE CONTENT IN THE MIXT. THE REACTION RATE WAS RATHER LOW COMPARED TO THE RATE OF DIFFUSION. FACILITY: INST. METALLOVED. FIZ. METAL., MOSCOW, USSR.

UNCLASSIFIED

USSR

TOMILIN, I. A., BORISENKO, V. G., PETRENKO, A. G. and SHVARTSMAN, L. A., Institute of Metallography and Physics of Metals, Institute of Precision Alloys, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Study of Decarbonization Kinetics of Transformer Steel in Moist Nitrogen-Hydrogen Media"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 34, No. 2, Feb 70, pp 329-332

Abstract: Factors determining the rate of decarbonization of transformer steel annealed in moist nitrogen-hydrogen media through the reactions

$$C + H_2O \text{ (gas)} = CO \text{ (gas)} + H_2 \text{ (gas)} \quad (1)$$

$$C + 2H_2 \text{ (gas)} = CH_4 \text{ (gas)} \quad (2)$$

were studied. Decarbonization kinetics were determined as a function of the hydrogen and water vapor content at 800°C. The decarbonization reaction took place in a mixed diffusion-kinetic mode. The reaction rate in these limits is described by a diffusion equation with third-order boundary conditions. The decarbonization rate was determined by the Biot number, which increases as the water vapor content in the gas increases, and it was found that the process goes

USSR

TOMILIN, I. A., et al, Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, Vol. 34, No. 2, Feb 70, pp 329-332

into the diffusion region for 8-10% H_2O by volume. Since the Biot number increases with the water vapor concentration and is independent of hydrogen content, carbon oxidation through reaction (1) is irreversible and the rate of the process is not slowed by increasing the concentration of hydrogen, which is a reaction product.

Card 2/2

USSR

UDC 616.988.75-078

SHVARTSMAN, M. N., KARPOVA, G. V., and YURCHIKOVA, L. A., Sanitary-Epidemiological Station of the Sverdlovsk Region, Moscow

"Evaluation of the Suitability of Virological and Cytological Study Methods in Early Diagnosis of Influenza Under Practical Laboratory Conditions"

Moscow, Laboratornoye Delo, No 4, 1970, pp 226-228

Abstract: Considering the laboratory situation, the most suitable method for isolation of influenza virus A2 from the infectious material of patients is the method based on infection of chick embryos, because of its simplicity, availability and high sensitivity; the virus is identified by means of a rapid and sensitive inhibition of hemagglutination. The method for detection of specific antigen based on fluorescing antibodies is very specific and very sensitive, but the absence of cells in preparations (which occurs quite often), diminishes its usefulness as a diagnostic tool. Isolation of influenza virus A2 in cell cultures, using hemadsorption and the cytopathic effect, is 100 and 1000 times less sensitive respectively than the chick embryo method. The cell culture method may be made more sensitive by utilizing fluorescing antibodies, but this certainly does not make it more advantageous than the chick embryo method.

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USSR

SMORCHKOV, A. P., TIKHOMIROVA, Z. M., SHVARTSMAN, M. N., and KARPOVA, G. V., 8th Municipal Childrens' Hospital and Virological Laboratory of the Sverdlovsk Rayon Sanitary Epidemiological Station, Moscow

"The Use of Anti-Influenza Gamma-Globulin in Comprehensive Treatment of Influenza in Children"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, pp 492-493

Translation: This is a report on the results of using anti-influenza gamma-globulin in comprehensive treatment of laboratory-confirmed A2 influenza in 53 children hospitalized during the 1969 epidemic outbreak. Depending on the age and severity of the disease, the patients received one, two, or three doses of anti-influenza gamma-globulin two or three times in the first days of the disease. The moderately severe, catarrhal form of influenza was prevalent. Hypothermia lasted mostly 1-2 days. In most patients, catarrhal signs and bronchitis subsided on the 5th to 15th day of the disease. In 36 patients, influenza was complicated by pneumonia (mostly in the localized, nontoxic form) which subsided usually on the 13th day. The effectiveness of the comprehensive therapy was evidenced by the absence of septic complications and lethal outcomes.

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USSR

UDC 621.396.6.049.75.002

MALYSHCHIKOV, V.F., SHVARTSMAN, SH.A.

"Apparatus For Etching And Removal Of Coating From Printed-Circuit Boards"

V sb. Obmen opytom v radiopром-sti (Sharing Of Experience In Radio Industry--Collection Of Works), Issue 4, Moscow, 1971, p 64 (from RZh--Radiotekhnika, No 9, Sept 1971, Abstract No 9V391)

Translation: For etching and removal of coating [kraska] from one-sided and two-sided printed-circuit boards an apparatus was created which consists of a bath with a 300 l. capacity of vinyl plastic, equipped with a lid and edge suction [bortovoy otsos]. Coils of titanium tubes placed at the two lateral sides of the bath serve for heating a solution with hot water or cooling it with cold water. Printed-circuit boards of any dimensions with 60-450 mm sides are loaded in a 20-place cassette with pins [shtyr'] of titanium alloy for attachment of the printed circuit boards. The distance between the boards is 18 mm. All sides of all the printed circuit boards are processed simultaneously and uniformly. The capacity of the apparatus is four boards a minute. Ye.M.

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1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--GAMMA AND RADIO EMISSION OF NEUTRON STARS IN A STATE OF ACCRETION

-U-

AUTHOR--SHVARTSMAN, V.F.

COUNTRY OF INFO--USSR

SOURCE--ASTROFIZIKA, VOL. 6, FEB. 1970, P. 123-134

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--GAMMA RADIATION, RADIO EMISSION, STAR, NEUTRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1455 STEP NO--UR/0388/70/006/000/0123/0134

CIRC ACCESSION NO--AP0125085

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 021

CIRC ACCESSION NO--AP0125085

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE USE OF GAMMA RADIATION OBSERVATIONS TO DISTINGUISH NEUTRON STARS FROM OTHER X RAY SOURCES AND TO DETERMINE THE SURFACE GRAVITATIONAL POTENTIAL OF NEUTRON STARS. ACCRETION OF GAS ON A NEUTRON STAR IS ACCOMPANIED BY INTENSE GAMMA EMISSION DUE TO THE GENERATION OF POSITIVE, NEGATIVE, AND NEUTRAL PIONS AND TO NUCLEAR AND THERMONUCLEAR REACTIONS IN THE STELLAR ATMOSPHERE. STUDY OF THE GAMMA QUANTA CAN YIELD USEFUL INFORMATION ABOUT THE NEUTRON STAR. IN ADDITION, GAMMA RADIATION IS ACCOMPANIED BY THE EJECTION OF RELATIVISTIC ELECTRONS AND POSITRONS WHOSE SYNCHROTRON RADIATION CAN BE DETECTED BY RADIO AND OPTICAL METHODS. THE POSSIBILITY OF SUCH AN INTERPRETATION OF THE RADIO BRIGHTNESS OF SCO X-1 IS CONSIDERED. FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET; AKADEMIIA NAUK SSSR, INSTITUT PRIKLADNOI MATEMATIKI, MOSCOW, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--PRECISION DETERMINATION OF THE LATTICE SPACING OF GERMANIUM USING A WIDE DIVERGENCE X RAY BEAM -U-

AUTHOR-(04)-BELUGINA, N.V., BUBLIK, V.T., GORELIK, S.S., SHVARTSMAN, V.L.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 306-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--GERMANIUM, DIFFRACTOMETER, CRYSTAL LATTICE, ELECTRON, METALLURGIC RESEARCH FACILITY/(U)EG100A ELECTRON DEFFRACTOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0291 STEP NO--UR/0032/70/036/003/0306/0307

CIRC ACCESSION NO--AP0124050
UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124050

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ATTACHMENT IS DESCRIBED ALLOWING MEASUREMENTS TO BE CARRIED OUT IN THE ELECTRON DIFFRACTOMETER EG-100-A. BY THERMOSTATING TO PLUS OR MINUS 0.5DEGREES DURING THE EXPOSITION AND LOWERING THE VOLTAGE BY 25-30 KV, GE LATTICE SPACINGS WERE DETD. WITH AN ABS. ERROR 2 TIMES 10 PRIME NEGATIVE5 ANGSTROM. VALUES FOR ZN AND NI RADIATION AGREE WITHIN 5 TIMES 10 PRIME NEGATIVE5 ANGSTROM. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

1/2 040 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--"STEAM PIPE DEFECTOSCOPY" -U-

AUTHOR-(04)-VINOGRADOV, N.V., KISHINEVSKAYA, Z.M., KHASNASH, T.V., SHVARTSMAN, V.YA.

COUNTRY OF INFO--USSR

SOURCE--SVERDLOVSK, DEFEKTOSKOPIYA, NO. 1, 1970, PP 8-10

DATE PUBLISHED-------70

SUBJECT AREAS--METHODS AND EQUIPMENT, ELECTRONICS AND ELECTRICAL ENGR., MATERIALS

TOPIC TAGS--NONDESTRUCTIVE TEST, ULTRASONIC INSPECTION, QUALITY CONTROL, AUTOMATIC CONTROL SYSTEM, TEST INSTRUMENTATION, METAL ROLLING, HOT WORKING, METAL PIPE/(U)VINT2 ULTRASONIC TEST INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0139 STEP NO--UR/0381/70/000/001/0008/0010

CIRC ACCESSION NO--AP0100669

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 040

CIRC ACCESSION NO--AP0100669

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION OF THE VINT 2 DEFECTOSCOPE, DEVELOPED BY THE ALL UNION SCIENTIFIC RESEARCH INSTITUTE. THIS INSTRUMENT WAS DESIGNED FOR SEMI AUTOMATIC ULTRASONIC QUALITY CONTROL OF SEAMLESS HOT ROLLED PIPES 325-560 MM IN DIAMETER, A WALL THICKNESS OF 8-70 MM, AND A LENGTH OF 2.5-12.5 M. THE DEVICE PERMITS THE USE OF THE SAME ROLLER CONVEYORS WITHOUT RECONSTRUCTION, REQUIRES NO ADDITIONAL PRODUCTION SPACE, AND ELIMINATES THE DEFECTS CONNECTED WITH THE PREVIOUSLY USED MANUAL TUBE CONTROL SUCH AS SUBJECTIVE ESTIMATES OF CONTROL RESULTS, INABILITY OF THE OPERATOR TO CATCH DEFECTS, NO AUTOMATIC SIGNALING OF DEFECTS, ETC. THE DEVICE PERFORMS ITS CONTROL FUNCTION BY THE PULSE ECHO METHOD IN THE CONTACT VARIATION, WITH THE INDUSTRIAL WATER SUPPLY AS THE CONTACT FLUID. IT CONSISTS OF ELECTRONIC, MECHANICAL, AND SONIC SECTIONS, EACH OF WHICH IS EXPLAINED IN THE TEXT. THE TECHNICAL SPECIFICATIONS OF THE DEVICE ARE LISTED. IT IS ASSERTED THAT IT CAN ALSO BE USED FOR QUALITY CONTROL OF OTHER GRADES OF PIPE WITH ONLY SLIGHT STRUCTURAL CHANGES.

UNCLASSIFIED

USSR

SHVARTSMAN, Ya., Professor, Doctor of Medical Sciences

"Prevention of Diseases"

Moscow, Nauka i Zhizn', No 2, 1970, pp 95-96

Abstract: The fate of pathogens entering the human body with inhaled air and ingested food is largely determined by the extent of the local specific immunity of the mucous membranes lining the respiratory pathways and the gastrointestinal tract. The study of the immunological properties of these tissues began only 6 years ago when it was discovered that one specific antigen can be attacked by various antibodies. Some of the differences were found to be associated with various carrier substances (glycoproteins) which protect the antibodies from enzymes. Of the three classes of immunoglobulins -- A, G, and M -- the A type is present in various secretions, such as tears, nasal mucus, saliva, gastrointestinal juices, and others. Since the concentration of immunoglobulin A in these secretions considerably exceeds its concentration in blood, it is believed that this antibody is synthesized locally. Persons with a high concentration of immunoglobulin A in their nasal mucus are more resistant to influenza-type diseases. Experimental results obtained on laboratory animals prove that resistance to influenza is determined more by

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USSR

SHVARTSMAN, Ya., Nauka i Zhizn', No 2, 1970, pp 95-96

the immunoglobulin A present in nasal mucus than that present in blood. This and other evidence indicates that the best anti-influenza vaccines are those which contain attenuated live virus and are applied topically on the nasal mucosa. Such a vaccine has been developed by Soviet scientists and is successfully being used in the Soviet Union and a number of other countries.

UDC 576.8.093.2

USSR

TSYBUL'SKAYA, N. V., SHVARTSMAN, Ya. S., KORNEYEVA, E. P., and SMORODINTSEV, A. A., Academician, Academy of Medical Sciences, USSR, All Union Scientific Research Institute of Influenza, Leningrad

"Antibody Synthesis by Lymphoid Cells After Immunization With Two Viral Antigens"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 3, 1970, pp 719-721

Abstract: The adsorption method was used to study antibody formation by spleen cells in mice immunized with influenza A2 and B viruses. The number of cells active in antibody formation did not increase until 48 hours after immunization, reaching a peak on the 5th day and quickly decreasing thereafter. Even at the height of the response, no more than 0.76% of the investigated cell population participated. Of the 24,518 cells from 15 immunized animals, only 293 cells produced antibodies, 160 to the A2 virus and 133 to the B virus. No cell elaborated the two types of antibodies at the same time. The number of cells that produced antibodies to each of the viruses was unrelated to whether the animals were immunized with monovalent or bivalent vaccine. It is thus evident that lymphod cells are

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USSR

TSYBUL'SKAYA, N. V., et al, Doklady Akademii Nauk SSSR, Vol 195, No 3, 1970, pp 719-721

functionally differentiated with respect to their reactions with different viral antigens.

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1/2 005 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--SULFUR DIOXIDE BY COMBUSTION OF SULFUR CONTAINING SUBSTANCES IN FLUIDIZED BEDS -U-

AUTHOR--TERNOVSKAYA, A.N., SHPUNT, S.YA., SHVARTSSHTEIN, YA.V., MALETS, A.M., KORENBERG, YA.G.

COUNTRY OF INFO--USSR

SOURCE--GER. 1,467,096

DATE PUBLISHED--26MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SULFUR OXIDE, FLUIDIZED BED, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1863 STEP NO--GY/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0108197

UNCLASSIFIED

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UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 005

CIRC ACCESSION NO--AA0108197

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PROCESS IS DESCRIBED FOR PRODUCING SO SUB2 FROM ELEMENTAL S OR S,CONTG. MATERIALS UTILIZING A DOUBLE FLUIDIZED BED ARRANGEMENT WHEREBY BURNING TAKES PLACE IN THE LOWER BED WITH THE TEMP. REACHING 700-1000DEGREES FOLLOWED BY COOLING OF THE GASES IN THE UPPER BED TO 350-450DEGREES. WHEN S IS USED, THE LOWER BED CONSISTS OF AIR FLUIDIZED INERT MATERIAL (E.G., QUARTZ SAND, CHAMOTTE); WHEN S,CONTG. MATERIAL (E.G., PYRITES) IS USED, THE MATERIAL ITSELF CONSTITUTES THE FLUIDIZED MEDIUM. THE UPPER BED CONSISTS OF HEAT ABSORBING MATERIALS.

UNCLASSIFIED

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1/2 009 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--AERATED CONCRETES -U-

AUTHOR-(05)-SHVARTZAYD, M.S., LAPARDIN, V.N., KRYZHANOVSKIY, B.B., LEONTYEV, YE.N., ZEMTSOV, D.G.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 267,427
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PATENT, CONCRETE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1402 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128801
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 009

CIRC ACCESSION NO--AA0126801

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CELLULAR CONCRETES BASED ON GROUND QUICKLIME AND SILICEOUS COMPONENTS WERE PREPD. BY 2 STAGE MIXING OF THESE COMPONENTS. IN THE 1ST STAGE ALL DRY COMPONENTS WERE MIXED WITH THE ADDN. OF 70-100PERCENT WATER. THE MIXT. WAS ALLOWED TO STAND WHILE THE TEMP. WAS LOWERED TO 35-40DEGREES. THEN THE MIXT. WAS THIXOTROPICALLY THINNED BY PUTTING INTO IT A STEAM GENERATOR AND THE REMAINING WATER, AND THEN IT WAS MIXED A 2ND TIME. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF CONSTRUCTION MATERIALS AND CONSTRUCTION.

UNCLASSIFIED

USSR

UDC 535.376:621.382

GORBAN', I.S., SULEYMANOV, YU.M., SHVAYDAK, YU.M., PAVLICHENKO, V.I., RYZHIKOV, I.V.

"Infrared Electroluminescence Of Epitaxial P-N Junctions Based On Silicon Carbide"

V sb. Elektrolyuminestsentsiya tverd. tel (Electroluminescence Of Solid Bodies--Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 19-21 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11B356)

Translation: The paper reports on the infrared electroluminescence spectra of epitaxial p-n junctions based on α-SiC (6H). Of particular interest is the electroluminescence spectrum (IR-II-EL) which consists of three narrow lines 1.184, 1.175, and 1.151 ev (halfwidth on the order of 1/10 kT at 293° K) which is observed at both room temperature and at the temperature of liquid nitrogen. In addition to the structure IR-II-EL, on other light diodes the infrared bands IR-I and IR-III were observed with energy maxima at 1.35 and 1.07 ev, respectively. A scheme of electron transitions responsible for forming IK-II is proposed. 3 ref. 2 ill. Summary.

1/1

UDC 576.851.48.097:616-006.04

USSR

MAYKO, I. I., KAGANS'KA, M. B., RASHBA, O. Ya., SHVAYGER, M. O., MANDRIK, T. P., and ZHEREBILO. O. S., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR

"Antitumor Activity of Polysaccharide-Containing Complexes of Escherichia coli"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 5, Sep/Oct 71, pp 548-552

Abstract: The antitumor activity of polysaccharide-containing complexes derived from the alkali-forming mutant KM of E. coli was studied in experiments on mice infected with sarcoma 37, lymphadenoma NK/Ly, lymphoma LyO-1, Ehrlich's tumor, and sarcoma K-239. The following polysaccharide-containing complexes were used: Boivin's antigen; complex antigen prepared according to O. Westfal; complex antigen prepared according to G. Freeman; "alkali" polysaccharides obtained by heating the bacterial mass with alkali; and exocellular polysaccharides isolated from the culture liquid. The highest activity was exhibited by Boivin's and Westfal's antigens, which inhibited the growth of most of the tumors studied. Toxicity (LD_{50} in mg/kg) was 130, 525, 2200, 3000, and 1700 for Boivin's antigen, Westfal's antigen, Freeman's antigen, "alkali" polysaccharides, and exocellular polysaccharides, respectively. The monosaccharide composition of the polysaccharide-containing complexes was determined chromatographically (table).

1/1

Steels

USSR

UDC: 669.189:539.219.1/.2

SOSKOV, D. A., SHVED, F. I., and TSIPUNOV, A. G., Chelyabinsk

"Effect of Solidification Conditions of Steel on the Degree of Its Dendritic Chemical Inhomogeneity"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 14-20

Abstract: This study concerns the characteristics of impurity distribution in a dendritic structure of steel subjected to directional crystallization at various rates. It was found that chromium distribution in a dendritic cell of carbon steel is determined by the carbon content and the crystallization rate (the duration of metal in the two-phase state). The constancy of chromium concentration in the dendritic axis at about 0.8 to 0.85 of the mean concentration has been confirmed. The dendritic inhomogeneity with respect to chromium (within the tested range of the experimental solidification) is caused primarily by separation diffusion at the interface of solid and liquid phases, the diffusion through the boundary layer, and stirring the liquid phase beyond the limits of this layer. Atom diffusion in the solid phase has no appreciable effect on chromium distribution in the cell

USSR

SOSKOV, D. A., et al, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 14-20

as a whole; this process, however, changes the shape of the concentration curve in the center of the interaxial section, near the cementite inclusions. Changes in chromium concentration over the cross section of a dendritic cell may be described mathematically by dividing the cell into three sectors with various types of changes in the effective distribution factor and the rate of displacement of the phase boundary.

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UNCLASSIFIED PROCESSING DATE--18SEP70

1/2 014

TITLE--NATURE AND FORMATION MECHANISM OF GHOSTS IN INGOTS ARC MELTED IN VACUUM -U-

AUTHOR-(03)-KARYAKIN, A.P., SHVED, F.I., SMIRNOV, YU.D.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(1) 62-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CRYSTALLIZATISN, INGOT, CRYSTAL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/0296 STEP NO--UR/0133/70/030/001/0062/0064

CIRC ACCESSION NO--AP0053281

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0053281

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EFFECT OF BATH ROTATION DURING SOLIDIFICATION WAS STUDIED IN THE LAB. AND IN A PLANT. ROTATION LOWERS THE TEMP. GRADIENT OF A BATH AND CHANGES ITS SHAPE AND DEPTH CAUSING A ZONAL REDISTRIBUTION OF IMPURITIES ALONG THE LENGTH OF AN INGOT AND LEADS TO A DISORIENTED DENDRITIC STRUCTURE. THIS REDISTRIBUTION IN THE 2 PHASE SYSTEM PRODUCES SEGREGATED AREAS IN INTERDENDRITIC VOLS. EXPRESSING THEMSELVES AS GHOSTS WHICH GROW IN SIZE WITH LONGER ROTATION AND REACH FULL DEVELOPMENT WHEN THE WHOLE SOLIDIFICATION CYCLE TAKES PLACE DURING ROTATION.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203010019-3"

UDC 532.542

USSR

SHVED, G. L.

"The Limit Case of the Flow of a Viscoplastic Medium in an Anular Channel"

Kieve, Prikladnaya Mekhanika, Vol 6, No 5, May 1970, pp 24-30

Abstract: The differential equation of a steady-state flow of an elastoplastic medium in an anular channel of arbitrary cross section, adhering to the walls under the action of the pressure gradient, is reduced to a form which permits evaluation of the curvature of the contour lines of equal angular velocity. This makes it possible to obtain the condition of the existence of an immobile nucleus (a stagnation zone) and to find, for the limit case of the flow, the equation of the contour of this nucleus and the value of the pressure gradient at which the flow starts.

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UDC: 512.25/.26+519.3:330.115

USSR

GORSKIY, V. G., SHVED, V. I.

"Use of a Simplex Method of Optimum Search to Solve Problems in Whole-Number Programming"

V sb. Vopr. kibernetiki)Problems of Cybernetics--collection of works), vyp. 41, Tashkent, 1970, pp 71-75 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V623)

[No abstract]

1/1

UNCLASSIFIED PROCESSING DATE--11SEP7

1/2 015

TITLE--REACTIONS OF EXCITED PROPYL RADICALS DURING GAS PHASE PROPYL IODIDE PHOTOLYSIS -U-

AUTHOR--DZANTIYEV, B.G., DEGTEREV, I.A., SHVEDCHIKOV, A.P.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 188-90

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL DECOMPOSITION, FREE RADICAL, IODINATED ORGANIC COMPOUND, PROPANE, PHOTOLYSIS, ETHYLENE, CHEMICAL REACTION RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0456/70/004/002/0188/0190

PROXY REEL/FRAME--1987/1051

CIRC ACCESSION NO--AP0104449

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104449

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF H SPLITTING BY EXCITED PR RADICALS AND THEIR DECOMPN. IN THE GASEOUS PHASE WAS STUDIED BY PHOTOLYSIS OF VAPORS OF PRI USING A HG LAMP OF THE PRK TYPE. THE PRINCIPAL PRODUCTS OF PHOTOLYSIS OF PRI IN THE GASEOUS PHASE WERE C SUB3 H SUB6 AND C SUB2 H SUB4. THE C SUB3 H SUB8 YIELD IS LESS THAN OR EQUAL TO 10PERCENT OF THE OLEFINS. WITH INCREASING PRESSURE THE OLEFIN YIELDS INCREASE LINEARLY BUT ABOVE 4 MM THEY DEPEND LITTLE ON PRESSURE. IN THE PRESENCE OF HCL AND HI THE C SUB3 H SUB8 YIELD INCREASES BY FACTORS OF 10 AND 20, RESP. WITH ADDN. OF N THE YIELDS OF C SUB3 H SUB8 AND C SUB2 H SUB4 DECREASE. THE INCREASE IN THE C SUB3 H SUB8 YEILD IN THE PHOTOLYSIS OF THE MIXTS. OF PRI WITH HI AND HCL IS DUE TO THE FACT THAT THE SPLITTING OF H FROM HX BY THE REACTION C SUB3 H SUB7 PLUS HX YIELDS C SUB3 H SUB8 PLUS X IS EASIER THAN BY THE REACTION C SUB3 H SYB7 PLUS PRI YIELDS C SUB3 H SUB8 PLUS C SUB3 H SUB6 I.

UNCLASSIFIED

USSR UDC 550.834

KOVALEV, O. I., SKVEDCHIKOV, L. K., and VYAZ'MIN, V. A., All-Union Scientific Research Institute of Geophysical Exploration Methods

"Electrodynamic Seismic Detector"

USSR Authors' Certificate No 363059, Cl. G 01v 1/16, filed 20 Aug 70, published 20 Dec 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1973, p 92)

Abstract: The device contains an electromechanical transducer of the electrodynamic type with a system for removing current from the moving coil to the output terminals through suspending springs, an inert mass suspended on elastic elements of increased linearity and a hermetic-sealing rubber ring. The unique feature of the device is that, to increase the operating reliability of the design, the coil of the seismic detector is suspended on three iris springs attached to the coil ends. At one end of the coil there are two springs, isolated from each other, which serve as elastic elements for suspending the coil and the elements for removing current from the moving coil

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KOVALEV, O. I., et al., USSR Authors' Certificate No 363059

to the output terminals of the transducer. Over the rubber ring, which is shifted into a circular groove formed by the cylindrical surfaces of the frame and cover, there is a metal ring. An illustration of the device is included.

UNCLASSIFIED PROCESSING DATE--02OCT70

1/3 . 032

TITLE--AERIAL PHOTOGRAPHY, AERIAL SURVEYS FROM AIRCRAFT AND SATELLITES -U-

AUTHOR--SHVEDE, U.

COUNTRY OF INFO--USSR

SOURCE--RIGA, NAUKA I TEKHNIKA, NO 3, PP 40-42

DATE PUBLISHED-------70

SUBJECT AREAS--METHODS AND EQUIPMENT

TOPIC TAGS--AERIAL PHOTOGRAPH, IR PHOTOGRAPHY, PHOTO INTERPRETATION, GEOLOGIC MAPPING, SPACEBORNE PHOTOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/9045/70/000/003/0040/0042

PROXY REEL/FRAME--1993/0652

CIRC ACCESSION NO--AP0113529

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--02OCT70

2/3 032

CIRC ACCESSION NO--AP0113529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN AIRCRAFT FLYING AT AN ALTITUDE OF 10 KM CAN PHOTOGRAPH EVERY NAIL HEAD IN THE ROOF OF A HOUSE. AT AN ALTITUDE OF 15 KM PHOTOGRAPHS CAN BE TAKEN WITH SUCH CLARITY THAT THE HEADLINES OF A NEWSPAPER CAN BE READ. AT 20 KM EVERY TRACK IN THE SNOW CAN BE PHOTOGRAPHED. AT 25 KM A CROSS COUNTRY VEHICLE CAN BE DISTINGUISHED FROM A BICYCLE. COLORED PHOTOGRAPHS CONVEY CONSIDERABLY MORE INFORMATION THAN BLACK AND WHITE PHOTOGRAPHS. WHEREAS ON A COLOR IMAGE ONE CAN DISCRIMINATE BETWEEN 12,000 AND 14,000 SHADES, ON BLACK AND WHITE IMAGES ONLY ABOUT 200 SHADES CAN BE DETECTED. IF AN IMAGE CONVERTER IS USED IN TAKING PHOTOGRAPHS ON AN ORDINARY FILM AN IMAGE CAN BE OBTAINED IN THE NEAR AND FAR PARTS OF THE IR SPECTRUM. THE SENSITIVITY OF SUCH AN OUTFIT IS SO HIGH THAT IT CAN DETECT A TEMPERATURE DIFFERENCE OF ABOUT 0.5DEGREES. SURVEYS CAN BE TAKEN DURING DAYTIME OR NIGHTTIME, THERMAL MAPS OF AN AREA CAN BE MADE AND THE SOURCES OF THERMAL RADIATION CAN BE DETERMINED. SUCH AERIAL PHOTOGRAPHS CAN BE USED IN COUNTING THE NUMBER OF WILD ANIMALS IN THE FOREST. AFTER THE METHOD IS IMPROVED IT WILL BE POSSIBLE TO DETERMINE THE TEMPERATURE DIFFERENCE NOT ONLY OF THE UPPER SOIL LAYERS, BUT THE DEEPER HORIZONS AS WELL AND EVEN THE TEMPERATURE OF GROUND WATER. IN SOME PARTS OF THE IR SPECTRUM WATER AND ITS VAPOR SUPPRESS IR RADIATION. THIS CIRCUMSTANCE IS USED IN DETERMINING THE DEGREE OF SOIL MOISTURE (DRY, FRESH, MOIST, OVERMOIST AND WET). AERIAL CAMERAS, INSTRUMENTS FOR REGISTERING IR RADIATION, RADAR AND OTHER INSTRUMENTS CAN BE CARRIED ON SATELLITES AS WELL AS AIRCRAFT.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--02OCT70

3/3 032

CIRC ACCESSION NO--AP0113529

ABSTRACT/EXTRACT--SATELLITE BORNE TELEMETRIC TRANSMITTERS OPERATING IN THE ELECTROMAGNETIC PART OF THE SPECTRUM FROM THE UV TO THE IR CAN SUPPLY A VAST AMOUNT OF INFORMATION CONCERNING THE EARTH, BOTH LAND AND SEA. THIS INFORMATION CAN BE USED BY AGRICULTURALISTS, IN EVALUATING PASTURE LANDS, IN SOIL MELIORATION WORK, IN MEASURING SNOW COVER AND WATER RESERVES IN THE SOIL, EXPLORING FOR MINERALS AND COMPILING GEOLOGICAL MAPS. REPEATED SURVEYS MAKE IT POSSIBLE TO EVALUATE THE YIELDS OF AGRICULTURAL CROPS. SURVEYS FROM SATELLITES ARE THE ONLY EFFECTIVE MEANS FOR GLOBAL MAPPING WORK AND THE COLLECTION OF GEODETIC DATA. PHOTOGRAPHS TAKEN BY GORDON COOPER WERE USED IN COMPILING A GEOLOGICAL MAP OF TIBET. SPACE PHOTOGRAPHS ARE SURPRISINGLY CLEAR. SAMOS (RECONNAISSANCE SATELLITES) PHOTOGRAPHS TAKEN FROM AN ALTITUDE OF 500 KM ARE SO CLEAR THAT ONE CAN DISTINGUISH EVERY RURAL ROAD, AN OPEN UMBRELLA OR A DOLL CARRIAGE. MAPPING OF THE UNITED STATES FROM AIRCRAFT WOULD COST 750 MILLION DOLLARS AND TAKE 10 YEARS. THIS WORK CAN BE DONE FROM SPACE IN A FEW DOZEN DAYS AND WOULD COST NOT MORE THAN 20 MILLION DOLLARS. THE ENTIRE COUNTRY COULD BE MAPPED FROM 400 PHOTOGRAPHS.

UNCLASSIFIED

UDC 621.372.2

USSR

MARTSINKEVICHYUS, A. K., MILYUSHIS, I. I., SHVEDENE, L. A.

"Problem of Calculating the Loss Coefficient in Band Transmission Lines"

Techn. kibernetika, Tekhn. kibernetika (Technical Cybernetics), Kaunas, 1970, pp 229-237 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8B146)

Translation: This article contains an investigation of expressions permitting determination of the magnitude of the ohmic and dielectric losses in band transmission lines which are suitable for creating connections in superhigh-speed integral macrojunctions and in systems made up of them. There are four illustrations, one table and an eight-entry bibliography.

1/1

USSR

UDC: 621.374.33

IGUMNOV, D. V., SHVEDOV, A. N.

"Experimental Study of the Speed of Micropower Pulse Circuits Based on Transistors"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of the Moscow Institute of Radio Engineering, Electronics and Automation), 1972, vyp. 60, pp 53-59 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12G226 by N. S.)

Translation: The paper presents the results of an experimental study from which the authors draw conclusions on the advantage of DTL microcircuits over RTL microcircuits. It is shown that in the case of microcircuits, the use of accelerating capacitances at the input leads to a deterioration of dynamic parameters. The operation of circuits with additional symmetry is considered. Bibliography of 3 titles.

1/1

USSR

UDC 621.382.3

SHVEDOV, A.N.

"Small Signal Parameters Of A Transistor In A Microregime"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices In Electrical Communications Technology--Collection Of Works), Moscow, "Svyaz'," 1970, pp 139-141 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B250)

Translation: On the basis of commonly known equations, the change is considered of the small signal parameters of a transistor during transition from an ordinary regime to a regime of microcurrents. It is shown that at the same time the amplification factor with respect to the current is abruptly decreased, the input impedance of the intake increases, and the output conductance falls; the feed back factor with respect to the voltage is increased in all by several times. 1 ill. 3 ref. V.S.

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USSR

UDC 532.593

KOLDUNOV, S. A., SHVEDOV, K. K., and DREMIN, A. N.

"Decomposition of Porous Explosive Materials Under the Action of Shock Waves"

Novosibirsk, Fizika goreniya i vzryva, No 2, 1973, pp 295-304

Abstract: The reason for this investigation into the decomposition processes of explosives under the action of shock waves is that it is important for the solution of many basic problems in detonation theory and the practical use of explosives. A method is here proposed for investigation explosive transformations occurring behind the shock wave front. No preliminary assumptions are made, and the method is therefore valid for various explosives with any charge structure. The essence of the method is to obtain data on the energy release in the shock-compressed material by recording the gas dynamic changes behind the rectangular-profiled front of the shock wave at the interface between the inert material and the exploding material. Measurement of the massive velocity of this interface is achieved by electromagnetic means. A drawing of the experimental equipment is given together with a table of the shock wave characteristics. The explosives used were ammonium nitrate, TNT,

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USSR

KOLDUNOV, S. A., et al, Fizika goreniya i vzryva, No 2, 1973, pp 295-304

Tetryl, hexogen, and TEN; physical details of each are given. It is concluded that the energy yield immediately after the shock wave front is the consequence of local heating arising directly in the explosive, and that the presence of pores promotes local dissipation of the shock wave energy.

2/2

SHVEDOV, K.P.

MEDICINE

GLOR

J-3448 105

VOYENNO-MEDITSINSKIY ZHURNAL, NO. 5, 1970, pp. 36-38

OUR EXPERIENCE WITH REANIMATION

by

Lieutenant Colonel of Medical Service
K.A. Demidov and
Major of Medical Service K.P. Shvedov

Experimental and clinical investigations of V.A. Negovskiy, A.A. Vishnevskiy, B.V. Petrovskiy, P.A. Kupriyanov and of others showed that the methods of reanimation can be extensively used in surgery, anesthesiology, traumatology, pediatry, internal medicine obstetrics and gynecology not only at large clinics and reanimation centers, but also in small medical installations.

In our hospital the reanimation ward was organized in 1961 on the basis of the dressing room of the reception department. Originally, this task included the treatment of persons suffering from severe forms of traumatic shock, and also of patients in the terminal stage. For doing these tasks, we had to give all physicians of the hospital and middle medical personnel theoretical and practical exercises on the employment of modern reanimation methods as well as to equip and outfit a reanimation ward in corresponding manner. In this ward there are a narcosis apparatus "Medi", two apparatuses for artificial respiration (DP-1 and DP2), laryngoscope, electrocardiograph, oxyhemometer, pulse tachometer, electric suction apparatus, set of intubation tubes, one liter of blood, 6 liters of blood substitutes, physiological solution, and a 5% glucose solution in ampuls, cardio-vascular agents, antidotes, narcotics, muscle relaxants, novocaine, novocaine amide, a reserve stock with calculation of a three-day requirement for two patients. On a special small table, sterile sets of instruments are kept for thoracotomy, tracheostomy, intravenous and intra-arterial forcing of blood. There is everything needed for gastric lavage and catheterization of the urinary bladder.

The placement of the reanimation room in the reception department created certain difficulties. Therefore, in 1964 we used an operating room of the surgical department as reanimation ward. Next to the operating block the ward of intensive therapy was set up in which all things are kept in constant readiness which are necessary for doing urgent intubation, tracheostomy, intraarterial forcing of blood, the DP-1 apparatus, a suction apparatus, sounds, catheters. For the organization of the work in the reanimation room and in the intensive therapy ward the anesthesiologist is responsible. From 1961 to 1967, we made 26 reanimations under extremely severe conditions. In seven patients we had complete success. In 4 the reanimation results were favorable, but due to postoperative complications one died on the second day from repeated bleeding, another on the 14th day from meningitis, the third on the 26th day from mediastinitis, the fourth on the 30th day from peritonitis. In nine persons death occurred during 1 to 4 hours after the restoration of heart and respiration, due to ventricular fibrillation, cardiac weakness, functional disturbance of respiration. Three patients died on the second day from a developed severe hypotonia, cardiac weakness, anuria. In three patients who were admitted to the hospital in the state of clinical death the cardiac function could not be restored.

Reanimation measures started at once after the patients' admission to the hospital. Twelve times we resorted to direct heart massage, ten times to indirect massage, and twice to massage through the diaphragm. The immediate start of reanimation did not exclude

Surgery

UDC 617.089.5

USSR

DEMIDOV, K. A., Lt Col Med Serv and SHVEDOV, K. P., Maj Med Serv

"Our Experience With Reanimation"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 4, 1970, pp 86-88

Abstract: Of 26 cases of reanimation attempted in patients with extremely serious conditions, seven were successful (complete recovery). Of the four others successfully reanimated, one died the following day of secondary hemorrhage, another died 14 days later of meningitis, the third died four weeks later of mediastinitis, and the fourth died a month later of peritonitis. Ten patients successfully revived died within four hours, of cardiac weakness and respiratory failure. Three died of grave hypotension and anuria. In three cases admitted to the hospital in a state of clinical death, it was impossible to restore cardiac activity. Revival measures began immediately upon admission to the hospital. Direct cardiac message through a thoracotomy, was performed in 12 cases, and indirect massage through the diaphragm in ten cases. At the same time, all signs, symptoms, and reflexes were observed and immediate, complex, differentiated therapy attempted. The duration of cardiac massage was 20 minutes to 2 hours. The basic reanimation complex consisted of: artificial induction of respiration with appropriate equipment, cardiac massage, intravenous and intro-arterial transfusion of blood and blood substitutes, use of cardiovascular agents, vitamins, glucose, and antihistamines. Patients who

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203010019-3"

USSR

DEMIDOV, K. A. and SHVEDOV, K. P., Voyenno-Meditsinskiy Zhurnal, No 4, 1970, pp 86-88

have undergone surgery together with reanimation are extremely sensitive to changes in the position of their bodies. Even transferring the patient from the operating table to the carriage can cause acute impairment of his condition. Generally survival depends on the reanimation procedures, the interval between the onset of the emergency and arrival at the hospital, and the phase and degree of traumatic shock.

USSR

UDC 666.018.4

GOREV, K. V., SHVEDOV, L. I.

"New Austenitic Steel With High Aluminum Content"

Izv. AN BSSR, Ser. Fiz-tekhn. Nauk, No 2, Minsk, 1971, pp 55-56.

Abstract: A new heat-resistant, dispersion-hardening steel of the following chemical composition is suggested: C, 0.3-0.45%; Cr, 10.0-12.5%; Ni 11.5-13%; Mn, 6-11%; Al, 3.2-4.3%; V, 1.4-2.0%; Si up to 0.35%; Fe, remainder. The maximum time to rupture of this alloy was produced following hardening from 1,150°C and aging at 650°C for 12 hours plus 750°C for 18 hours. Strength properties were as follows: tensile strength 90-130 kg/mm^2 at 20°; 60 kg/mm^2 at 800°C; proportionality limit -- 85 and 51 kg/mm^2; true rupture resistance 180 and 72 kg/mm^2; relative elongation 24 and 6%; relative reduction in area 28 and 20%; at 20°C, the impact toughness was 11-21 kg·m/cm^2, shear strength 57-70 kg/mm^2; bending strength 140-171 kg/mm^2. Long term strength characteristics are also presented.

1/1

USSR

UDC: 669.15.018.44

SHVEDOV, L. I. and GORETSKIY, G. P.

"Investigating Fe-Mn-Al Refractory Alloys"

Minsk, Izvestiya Akademii Nauk BSSR--Seriya fiziko-tekhnicheskikh nauk, No 1, 1972, pp 43-46

Abstract: Noting that the Soviet Union has large stores of manganese and aluminum ores and hence possesses enormous resources for the production of manganese-aluminum steel, the authors investigate the microstructure of Fe-Mn-Al systems and study the most typical characteristics for refractory alloys of this type and their dependence on the chemical composition. The subjects of their research were three polythermal specimens with 4, 7, and 10% Al, and with carbon contents of 0.04-0.06%. In these specimens, the manganese content varied from 0 to 50%. The alloys were made with Armco iron, electrolytic manganese, and type AV-000 Al as burdening material. Results of stretching, plasticity, and refractory tests made on these specimens are given; it is found that alloys containing 0-20% Mn maintain a homogeneous ferrite structure with varying processing temperatures. The authors are associated with the Physico-Technical Institute, Belorussian Academy of Sciences. 1/1

UDC 666.018.4

USSR

GOREV, K. V., SHVEDOV, L. I., Physicotechnical Institute of the Academy of Sciences BSSR

"New Austenitic Steel With a Higher Aluminum Content"

Minsk, Izvestiya Akademii nauk BSSR, Seriya fiziko-tekhnicheskikh nauk, No. 2, 1971, pp 55-56

Abstract: The problem was posed of developing a new dispersion hardening steel having high heat resistance and containing as little scarce expensive components as possible. A γ-hard mixture of Fe-Cr-Ni-Mn alloy containing a limited amount of nickel was selected as the basic mixture and the effect of the elements aluminum, vanadium, and carbon on this mixture was studied. Various quantities of aluminum were introduced into an alloy containing 10% Cr, 15% Ni, 5% Mn and the remainder Fe. Experiments showed that with an aluminum content above 3.5% the hardened alloys undergo considerable dispersion strengthening in the annealing process at temperatures of 700-750°C. The maximum effect of aging is achieved with an aluminum content of 5.5%. With a 4-5% aluminum content, the austenitic base of these alloys is achieved with nickel present in quantities of no less

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GOREV, K. V., SHVEDOV, L. I., Izvestiya Akademii nauk BSSR, Seriya fiziko-tekhnicheskikh nauk, No. 2, 1971, pp 55-56

than 12-13%. Raising the manganese content to 10% causes stabilization of the austenite and the austenitic base of the alloys is achieved with a somewhat lower concentration of nickel. In studying the effect of heat treatment conditions on duration of strength and plasticity at high temperatures, the maximum time to breakdown was obtained with samples annealed from 1150°C and aged at 650°C for 12 hours and at 750° for 18 hours. The new heat resistant steel had the following chemical composition: 0.3-0.45% C; 10.0-12.5% Cr; 11.5-13% Ni, 6-11% Mn; 3.2-4.3% Al; 1.4-2.0% V; up to 0.35% Si, and the remainder Fe. The results of tests of the mechanical properties of this steel are given. The fatigue limit at 20°C with a base $n = 10^7$ cycles was 80 G/mm^2. The steel is easily processed by pressure in the temperature interval 1200-900°C and cuts very satisfactorily.

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UDC 669.25.028.44

USSR

SHVEDOV, L. I., PAVLENKO, Z. D., and LIVSHITS, S. L., Physicotechnical Institute, Academy of Sciences, Belorussian SSR

"Investigation of the Structure and Properties of Cast Chrome-Nickel-Aluminum Steels and the Influence of Titanium, Boron, Cerium, and Zirconium on Them"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnickeskikh Nauk, No 1, 1971, pp 33-37

Abstract: The article considers the influence of aluminum upon the microstructure, strength characteristics, thermal stability, heat resistance, and irreversible change of dimensions in the cyclic heat treatment of austenitic chrome-nickel steels of the three groups 1214, 18-19, and 18-25 in a cast state. The influence of the content of nickel and of titanium, boron, cerium, and zirconium additives on the properties of these steels is investigated. One table, 2 figures, 10 bibliographic entries.

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UDC 620.17:669.14.018.44

USSR

SHVEDOV, L. I., Physicotechnical Institute, Academy of Sciences Belorussian SSR

"New Heat-Resistant Steel"

Moscow, Metallovedeniye, No 3, 1973, pp 70-71

Abstract: A new heat-resistant austenitic steel--3Kh15N13Yu3--has been developed (Author's Certificate No 260901) to replace steels Kh25N19S2L and Kh18N24S2L for the manufacture of bottom plates, muffles, grates, radiation pipe, and other parts of furnaces. The chemical composition of the new steel is (in %): 0.2-0.4 C, 13.5-16 Cr, 12-14.5 Ni, 2.3-3.0 Al, 1 Si (max), 0.5-0.9 Mn, and 0.03 S and P (max). If the silicon and aluminum content are increased and the nickel and carbon content decreased this steel acquires a ferritic structure. Thermal stability can be increased by increasing the aluminum and nickel content. The above-mentioned furnace parts are being cast from this steel at the Minsk Tractor Plant. 2 figures, 1 table, 2 bibliographic references.

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USSR UDC: 621.317.335:539.216.2

SEMENOV, Yu. P., GUSHCHINA, T. M., EPSHTEYN, S. L., SHVEDOV, O. A.

"Determination of the Dielectric Characteristics of Thin Films"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 110-115 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A355)

Translation: Methods of determining the permittivity and loss angle of dielectric films used in capacitor construction are briefly classified. The peculiarities of various groups of methods are examined; the authors propose and study a noncontact method which does not require a preliminary determination of film thickness. The procedure is described and its error is indicated. Contact methods using electrodes in the molten state are most suitable for single-layer thin film specimens. A measurement cell with special electrodes of In-Ga-Zn alloys has been developed for use with this method; the design of the cell is described, and its basic technical characteristics are given. A table of measurement results is presented. Bibliography of one title. E. L.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203010019-3"

AA0051838 SHVEDOV V.A. UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 2-7c

243445 AUTOMATIC FIREARM PRACTICE TARGET CONTROL comprises, a switch, rectifier and d.c. motor carrying a programming disc, and a relay with one normally closed contact and two normally open contacts. The brake unit comprises solenoid 10 whose core is connected to bush 12 around column 13 of the target via bar 11. The target is moved by solenoids 14 & 15, the tail in the core of the latter carrying lug 16 controlling contacts 17 & 8 in the circuit of solenoid 10. The rotation of the programming disc trips the relay which switches off solenoid 10 and energises solenoids 14 & 15. As a result, the target is moved so that its edge faces the rifleman, and lug 16 closes contact 18 energising solenoid 10 and holding down the target in the above position. The cycle is repeated in accordance with the geometry of the programming disc.

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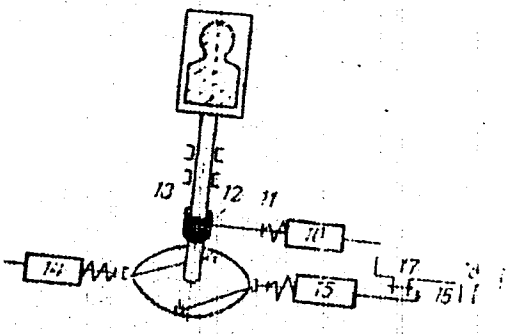

7.7.67. as 1170709/40-23, GOLOVIN, Yu. F. SHVEDOV, V.A. (15.9.69) Bul. 16/5.5.69. Class 72e, Int. Cl. F 41j.

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